

SEQUENCE LISTING

<110> BLANC, Veronique

THIBAUT, Denis

BAMAS-JACQUES, Nathalie

BLANCHE, Francis

COUZET, Joel

BARRIERE, Jean-Claude

DEBUSSCHE, Laurent

FAMECHON, Alain

PARIS, Jean-Marc

DUTRUC-ROSSET, Gilles

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<141> 1997-03-20

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gaagccctct tcgaccgatt ccccgacttc tcgccaccg acggcgcaaa actgcgctac 1140
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<210> 10

<211> 399

<212> PRT

<213> Streptomyces pristinaespiralis

<400> 10

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Pro | Pro | Thr | Pro | Arg | Pro | Thr | Thr | Asp | Asp | Gly | Gly | Arg | Glu | Leu |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| | | | | | | | | | | | | | | | |
| Leu | Ala | Trp | Leu | Arg | Glu | Met | Arg | His | His | His | Pro | Val | His | Glu | Asp |
| | | | 20 | | | | | 25 | | | | | 30 | | |

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Glu Tyr Gly Ala Phe His Val Phe Arg His Ala Asp Val Leu Thr Val
35 40 45

Ala Ser Asp Pro Gly Val Tyr Ser Ser Gln Leu Ser Arg Leu Arg Pro
50 55 60

Gly Ser Gln Ala Leu Ser Glu Gln Ile Leu Ser Val Ile Asp Pro Pro
65 70 75 80

Met His Arg Thr Leu Arg Arg Leu Val Ser Gln Ala Phe Thr Pro Arg
85 90 95

Thr Val Ala Asp Leu Glu Pro Arg Val Thr Glu Leu Ala Gly Gln Leu
100 105 110

Leu Asp Ala Val Asp Gly Asp Thr Phe Asp Leu Val Ala Asp Phe Ala
115 120 125

Tyr Pro Leu Pro Val Ile Val Ile Ala Glu Leu Leu Gly Val Pro Pro
130 135 140

Ala Asp Arg Thr Leu Phe Arg Ser Trp Ser Asp Arg Met Leu Gln Met
145 150 155 160

Gln Val Ala Asp Pro Ala Asp Met Gln Phe Gly Asp Asp Ala Asp Glu
165 170 175

Asp Tyr Gln Arg Leu Val Lys Glu Pro Met Arg Ala Met His Ala Tyr
180 185 190

Leu His Asp His Val Thr Asp Arg Arg Ala Arg Pro Ala Asn Asp Leu
195 200 205

Ile Ser Ala Leu Val Ala Ala Arg Val Glu Gly Glu Arg Leu Thr Asp
210 215 220

Glu Gln Ile Val Glu Phe Gly Ala Leu Leu Leu Met Ala Gly His Val
225 230 235 240

Ser Thr Ser Met Leu Leu Gly Asn Thr Val Leu Cys Leu Lys Asp His
245 250 255

Pro Arg Ala Glu Ala Ala Ala Arg Ala Asp Arg Ser Leu Ile Pro Ala
260 265 270

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Leu Ile Glu Glu Val Leu Arg Leu Arg Pro Pro Ile Thr Val Met Ala
275 280 285

Arg Val Thr Thr Lys Asp Thr Val Leu Ala Gly Thr Thr Ile Pro Ala
290 295 300

Gly Arg Met Val Val Pro Ser Leu Leu Ser Ala Asn His Asp Glu Gln
305 310 315 320

Val Phe Thr Asp Pro Asp His Leu Asp Leu Ala Arg Glu Gly Arg Gln
325 330 335

Ile Ala Phe Gly His Gly Ile His Tyr Cys Leu Gly Ala Pro Leu Ala
340 345 350

Arg Leu Glu Gly Arg Ile Ala Leu Glu Ala Leu Phe Asp Arg Phe Pro
355 360 365

Asp Phe Ser Pro Thr Asp Gly Ala Lys Leu Arg Tyr His Arg Asp Gly
370 375 380

Leu Phe Gly Val Lys Asn Leu Pro Leu Thr Val Arg Arg Gly Pro
385 390 395

<210> 11

<211> 1561

<212> DNA

<213> *Streptomyces pristinaespiralis*

<400> 11

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gacaagaagg ccctggcggc cgacatcgcc gccaaagaccg cccccaccg cccaccacc 120
gccggccacg gcccgaccac ggacggcgat acggccgggtg ggggtgggtc cgcgggcggg 180
gtgacggccg ccggtggcgg gcgggaggag gcggcgtgag cgggcccggg cccgagggcg 240
gctaccgggt gccgttcgc cgacgcggtt cgggtgtggg cgaggcggac ctggcggcgc 300
tgggcgaact ggtccgctcg ggccggtcgc tgacgtcggg ggtgtggcgg gagcggttcg 360
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tcgcgtgga actggcgggtg cggatgctgg acctggcgcc gggcgacgag gtgatcgcca 480
ccccgcagac gtccaggcg acggtgcagc cgctgctcga ccacgacgtg cggtgcggt 540
tctgcgacat cgaccgggac accctcaacc tcgaccggc ggtgtggag acgctgatca 600
ccgaccgcac ccgggcgatc ctgctgtcc actacggcgg caaccggcc gacatggacc 660
gcatcatggc cctggcccgc aagcgcgga tcatgctgt cgaggacagc gcgcacgcgc 720
tgggcgccgt gtaccggggg cggcggccgg gggcactggc ggacatcggc tgcttcaatt 780
tccactccac gaagaacatc accaccctcg gcgaggcggt catgatcacc ctgtcgcgtg 840
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<210> 12

<211> 1233

<212> DNA

<213> *Streptomyces pristinaespiralis*

<400> 12

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 ttcgcccgcc tgaccggcgc ccggcacgcg ctacgtgtca ccagcggcac cgtcgcgctg 180
 gaactggcgg tgcggatgct ggacctggcg ccgggcgacg aggtgatcgc caccgcag 240
 acgttcagg cgacgggtgca gccgtgctc gaccacgacg tgcggctgcg gttctgcgac 300
 atcgaccggg acacctcaa cctcgaccgg gcggtgctgg agacgtgat caccgaccgc 360
 accggggcga tctgctcgt ccactacggc ggcaaccgg ccgacatgga ccgcatcatg 420
 gccctggccc gcaagcgcgg catcatcgtc gtcgaggaca gcgcgcacgc gctgggcgcc 480

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gtgtaccggg ggcggcgcc gggggcactg gcggacatcg gctgcttcac ttccactcc 540
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 gactccgcgc gggcgggtgc tccggcgtg ctgccgtgga tgaagttcgc ggagggtgtg 720
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 gcggcggcgg tgggcgtggt gcaactggcg tcgctggagc ggttcgtggc ccggcgcccg 840
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 gggcggcggg acagtctgca cgcctaccac ctgtacagt tcttcctcac cggcggcccg 960
 caggtgcggg agcgggtcgt gcgcgccctg gaccggctgg gtgtggaggt ccagttgcgg 1020
 tacttcccgc tccatctgtc gcccagtggt cggtgcgcg gccacgggcc gggcgagtgt 1080
 ccgacggccg aacgggtctg gttcgaggag cacatgaacc tgccgtgcca tcccgtctg 1140
 agtgacggcc aggtcgacta catggtcgag gcggtcacc gcgccctgca cgaggccac 1200
 ggcacgggga cgcgggtggc ggccgggcac ctg 1233

<210> 13

<211> 412

<212> PRT

<213> *Streptomyces pristinaespiralis*

<400> 13

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| | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Pro | Phe | Ala | Arg | Arg | Gly | Ser | Val | Val | Gly | Glu | Ala | Asp | Leu | Ala | 1 | 5 | 10 | 15 |
| Ala | Leu | Gly | Glu | Leu | Val | Arg | Ser | Gly | Arg | Ser | Leu | Thr | Ser | Gly | Val | 20 | 25 | 30 | |
| Trp | Arg | Glu | Arg | Phe | Glu | Glu | Gln | Phe | Ala | Arg | Leu | Thr | Gly | Ala | Arg | 35 | 40 | 45 | |
| His | Ala | Leu | Ser | Val | Thr | Ser | Gly | Thr | Val | Ala | Leu | Glu | Leu | Ala | Val | 50 | 55 | 60 | |
| Arg | Met | Leu | Asp | Leu | Ala | Pro | Gly | Asp | Glu | Val | Ile | Ala | Thr | Pro | Gln | 65 | 70 | 75 | 80 |
| Thr | Phe | Gln | Ala | Thr | Val | Gln | Pro | Leu | Leu | Asp | His | Asp | Val | Arg | Leu | 85 | 90 | 95 | |
| Arg | Phe | Cys | Asp | Ile | Asp | Pro | Asp | Thr | Leu | Asn | Leu | Asp | Pro | Ala | Val | 100 | 105 | 110 | |
| Leu | Glu | Thr | Leu | Ile | Thr | Asp | Arg | Thr | Arg | Ala | Ile | Leu | Leu | Val | His | 115 | 120 | 125 | |
| Tyr | Gly | Gly | Asn | Pro | Ala | Asp | Met | Asp | Arg | Ile | Met | Ala | Leu | Ala | Arg | 130 | 135 | 140 | |
| Lys | Arg | Gly | Ile | Ile | Val | Val | Glu | Asp | Ser | Ala | His | Ala | Leu | Gly | Ala | 145 | 150 | 155 | 160 |
| Val | Tyr | Arg | Gly | Arg | Arg | Pro | Gly | Ala | Leu | Ala | Asp | Ile | Gly | Cys | Phe | 165 | 170 | 175 | |
| Thr | Phe | His | Ser | Thr | Lys | Asn | Ile | Thr | Thr | Leu | Gly | Glu | Gly | Gly | Met | 180 | 185 | 190 | |
| Ile | Thr | Leu | Ser | Arg | Asp | Glu | Trp | Ala | Gln | Arg | Val | Gly | Arg | Ile | Arg | 195 | 200 | 205 | |
| Asp | Asn | Glu | Ala | Asp | Gly | Val | Tyr | Ala | Ala | Leu | Pro | Asp | Ser | Ala | Arg | 210 | 215 | 220 | |

Ala Gly Ala Pro Ala Leu Leu Pro Trp Met Lys Phe Ala Glu Gly Val
225 230 235 240

Tyr Gly His Arg Ala Val Gly Val Arg Gly Ala Gly Thr Asn Ala Thr
245 250 255

Met Ser Glu Ala Ala Ala Val Gly Val Val Gln Leu Ala Ser Leu
260 265 270

Glu Arg Phe Val Ala Arg Arg Arg Ser Ile Ala Gln Arg Leu Asp Glu
275 280 285

Ala Val Ala Ser Val Ala Gly Thr Arg Leu His Arg Ala Ala Asp
290 295 300

Ser Leu His Ala Tyr His Leu Tyr Thr Phe Phe Leu Thr Gly Gly Arg
305 310 315 320

Gln Val Arg Glu Arg Phe Val Arg Ala Leu Asp Arg Leu Gly Val Glu
325 330 335

Val Gln Leu Arg Tyr Phe Pro Leu His Leu Ser Pro Glu Trp Arg Leu
340 345 350

Arg Gly His Gly Pro Gly Glu Cys Pro Thr Ala Glu Arg Val Trp Phe
355 360 365

Glu Glu His Met Asn Leu Pro Cys His Pro Gly Leu Ser Asp Gly Gln
370 375 380

Val Asp Tyr Met Val Glu Ala Val Thr Arg Ala Leu His Glu Ala His
385 390 395 400

Gly Thr Gly Thr Arg Val Ala Ala Gly His Leu Pro
405 410

<210> 14

<211> 2220

<212> DNA

<213> *Streptomyces pristinaespiralis*

<400> 14

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cagatgctgg ccgaggtgaa cggcggcgtc cgcctcgtcg tccgcaacga cgacaccgc 180
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caccgcgcca ccgacaccga cctgggcctc agccgccggg tgatcaccga atgggacctg 300
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gtccacgcac ccgaaccctt tcacggccgc accagcgaca tccgccacga cgggcagggc 420
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gccaccgcc acctgcccc ctctggcgtg cagttccacc ccgaatgat cagcagcgaa 600
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 gcgtgggct acttcgcct cagcggcgc gccgacctc gcatcgtcat ccgaccatc 2040
 gtcgccaccg aggaggccgc caccatcggc gtggggggcg ccgtcgtcgc cctgtccgac 2100
 cccgacgacg aggtccgga aatgctctc aaggcgcaga ccaccctgc cgccctgcgc 2160
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<210> 15

<211> 719

<212> PRT

<213> Streptomyces pristinaespiralis

<400> 15

Val Arg Thr Val Arg Thr Leu Leu Ile Asp Asn Tyr Asp Ser Phe Thr
1 5 10 15

Tyr Asn Leu Phe Gln Met Leu Ala Glu Val Asn Gly Ala Ala Pro Leu
20 25 30

Val Val Arg Asn Asp Asp Thr Arg Thr Trp Gln Ala Leu Ala Pro Gly
35 40 45

Asp Phe Asp Asn Val Val Val Ser Pro Gly Pro Gly His Pro Ala Thr
50 55 60

Asp Thr Asp Leu Gly Leu Ser Arg Arg Val Ile Thr Glu Trp Asp Leu
65 70 75 80

Pro Leu Leu Gly Val Cys Leu Gly His Gln Ala Leu Cys Leu Leu Ala
85 90 95

Gly Ala Ala Val Val His Ala Pro Glu Pro Phe His Gly Arg Thr Ser
100 105 110

Asp Ile Arg His Asp Gly Gln Gly Leu Phe Ala Asn Ile Pro Ser Pro
115 120 125

Leu Thr Val Val Arg Tyr His Ser Leu Thr Val Arg Gln Leu Pro Ala
130 135 140

Asp Leu Arg Ala Thr Ala His Thr Ala Asp Gly Gln Leu Met Ala Val
145 150 155 160

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Ala His Arg His Leu Pro Arg Phe Gly Val Gln Phe His Pro Glu Ser
165 170 175

Ile Ser Ser Glu His Gly His Arg Met Leu Ala Asn Phe Arg Asp Leu
180 185 190

Ser Leu Arg Ala Ala Gly His Arg Pro Pro His Thr Glu Arg Ile Pro
195 200 205

Ala Pro Ala Pro Ala Pro Ala Pro Ala Pro Ala Pro Ala Pro Pro Ala
210 215 220

Ser Ala Pro Val Gly Glu Tyr Arg Leu His Val Arg Glu Val Ala Cys
225 230 235 240

Val Pro Asp Ala Asp Ala Ala Phe Thr Ala Leu Phe Ala Asp Ala Pro
245 250 255

Ala Arg Phe Trp Leu Asp Ser Ser Arg Val Glu Pro Gly Leu Ala Arg
260 265 270

Phe Thr Phe Leu Gly Ala Pro Ala Gly Pro Leu Gly Glu Gln Ile Thr
275 280 285

Tyr Asp Val Ala Asp Arg Ala Val Arg Val Lys Asp Gly Ser Gly Gly
290 295 300

Glu Thr Arg Arg Pro Gly Thr Leu Phe Asp His Leu Glu His Glu Leu
305 310 315 320

Ala Ala Arg Ala Leu Pro Ala Thr Gly Leu Pro Phe Glu Phe Asn Leu
325 330 335

Gly Tyr Val Gly Tyr Leu Gly Tyr Glu Thr Lys Ala Asp Ser Gly Gly
340 345 350

Glu Asp Ala His Arg Gly Glu Leu Pro Asp Gly Ala Phe Met Phe Ala
355 360 365

Asp Arg Met Leu Ala Leu Asp His Glu Gln Gly Arg Ala Trp Leu Leu
370 375 380

Ala Leu Ser Ser Thr Arg Arg Pro Ala Thr Ala Pro Ala Ala Glu Arg
385 390 395 400

Trp Leu Thr Asp Ala Ala Arg Thr Leu Ala Thr Thr Ala Pro Arg Pro
 405 410 415
 Pro Phe Thr Leu Leu Pro Asp Asp Gln Leu Pro Ala Leu Asp Val His
 420 425 430
 Tyr Arg His Ser Leu Pro Arg Tyr Arg Glu Leu Val Glu Glu Cys Arg
 435 440 445
 Arg Leu Ile Thr Asp Gly Glu Thr Tyr Glu Val Cys Leu Thr Asn Met
 450 455 460
 Leu Arg Val Pro Gly Arg Ile Asp Pro Leu Thr Ala Tyr Arg Ala Leu
 465 470 475 480
 Arg Thr Val Ser Pro Ala Pro Tyr Ala Ala Tyr Leu Gln Phe Pro Gly
 485 490 495
 Ala Thr Val Leu Ser Ser Ser Pro Glu Arg Phe Leu Arg Ile Gly Ala
 500 505 510
 Asp Gly Trp Ala Glu Ser Lys Pro Ile Lys Gly Thr Arg Pro Arg Gly
 515 520 525
 Ala Gly Pro Ala Gln Asp Ala Ala Val Lys Ala Ser Leu Ala Ala Ala
 530 535 540
 Glu Lys Asp Arg Ser Glu Asn Leu Met Ile Val Asp Leu Val Arg Asn
 545 550 555 560
 Asp Leu Gly Gln Val Cys Asp Ile Gly Ser Val His Val Pro Gly Leu
 565 570 575
 Phe Glu Val Glu Thr Tyr Ala Thr Val His Gln Leu Val Ser Thr Val
 580 585 590
 Arg Gly Arg Leu Ala Ala Asp Val Ser Arg Pro Arg Ala Val Arg Ala
 595 600 605
 Ala Phe Pro Gly Gly Ser Met Thr Gly Ala Pro Lys Val Arg Thr Met
 610 615 620
 Gln Phe Ile Asp Arg Leu Glu Lys Gly Pro Arg Gly Val Tyr Ser Gly
 625 630 635 640

Ala Leu Gly Tyr Phe Ala Leu Ser Gly Ala Ala Asp Leu Ser Ile Val
645 650 655

Ile Arg Thr Ile Val Ala Thr Glu Glu Ala Ala Thr Ile Gly Val Gly
660 665 670

Gly Ala Val Val Ala Leu Ser Asp Pro Asp Asp Glu Val Arg Glu Met
675 680 685

Leu Leu Lys Ala Gln Thr Thr Leu Ala Ala Leu Arg Gln Ala His Ala
690 695 700

Gly Ala Thr Ala Ser Asp Arg Glu Leu Leu Ala Gly Ser Leu Arg
705 710 715

<210> 16

<211> 962

<212> DNA

<213> *Streptomyces pristinaespiralis*

<400> 16

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acgaggccac cgggcagctg accggcgccg ggatcaccgc cgacgccgcc cgggccgaca 180
cccggtgct ggccgccac gcctgccagg tcgccccggg ggacctgac acctgcctgg 240
ccggcccgt gccgccccg ttctggcact acgtccggcg ccgtctgacc cggaaccgc 300

ccgaacgcat cgtcggccac gcctacttca tgggccaccg cttcgacctg gccccggcg 360
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 ccctcgtccg ccgcggcacc accgcacccc tggtcgtcga cctgtgcgcc ggaccgggca 480
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 cgccgctggc cctgtgggcc ggggaggagg gcctcggcat gatccgcgcc atggaacgca 780
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 tcgctccgt gcccgcctg ttccgcgcaa ccggccgctg gagccacgcc tcgtccgctc 900
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 ga 962

<210> 17

<211> 292

<212> PRT

<213> *Streptomyces pristinaespiralis*

<400> 17

Val Thr Ala Ala Ala Pro Thr Leu Ala Gln Ala Leu Asp Glu Ala Thr
1 5 10 15

Gly Gln Leu Thr Gly Ala Gly Ile Thr Ala Asp Ala Ala Arg Ala Asp
20 25 30

Thr Arg Leu Leu Ala Ala His Ala Cys Gln Val Ala Pro Gly Asp Leu
35 40 45

Asp Thr Cys Leu Ala Gly Pro Val Pro Pro Arg Phe Trp His Tyr Val
50 55 60

Arg Arg Arg Leu Thr Arg Glu Pro Ala Glu Arg Ile Val Gly His Ala
65 70 75 80

Tyr Phe Met Gly His Arg Phe Asp Leu Ala Pro Gly Val Phe Val Pro
85 90 95

Lys Pro Glu Thr Glu Glu Ile Thr Arg Asp Ala Ile Ala Arg Leu Glu
100 105 110

Ala Leu Val Arg Arg Gly Thr Thr Ala Pro Leu Val Val Asp Leu Cys
115 120 125

Ala Gly Pro Gly Thr Met Ala Val Thr Leu Ala Arg His Val Pro Ala
130 135 140

Ala Arg Val Leu Gly Ile Glu Leu Ser Gln Ala Ala Arg Ala Ala
145 150 155 160

Arg Arg Asn Ala Arg Gly Thr Gly Ala Arg Ile Val Gln Gly Asp Ala
165 170 175

Arg Asp Ala Phe Pro Glu Leu Ser Gly Thr Val Asp Leu Val Val Thr
180 185 190

Asn Pro Pro Tyr Ile Pro Ile Gly Leu Arg Thr Ser Ala Pro Glu Val
195 200 205

Leu Glu His Asp Pro Pro Leu Ala Leu Trp Ala Gly Glu Glu Gly Leu
210 215 220

Gly Met Ile Arg Ala Met Glu Arg Thr Ala Ala Arg Leu Leu Ala Pro
225 230 235 240

Gly Gly Val Leu Leu Leu Glu His Gly Ser Tyr Gln Leu Ala Ser Val
245 250 255

Pro Ala Leu Phe Arg Ala Thr Gly Arg Trp Ser His Ala Ser Ser Arg
260 265 270

Pro Thr Cys Asn Asp Gly Cys Leu Thr Ala Val Arg Asn His Thr Cys
275 280 285

Ala Pro Pro Ala
290

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